

Serial No.: 10/822,004
Docket No.: 101-1028
Amendment After Final dated: August 14, 2007
Reply to the Final Office Action of June 15, 2007

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An electrophotographic printer comprising:
a main frame to define an internal space of the electrophotographic printer;
a photosensitive drum unit ~~vertically detachably~~ installed at a drum operating position in the internal space of the main frame through an upper side of the main frame, and having a photosensitive drum on which an electrostatic latent image is formed; and
an intermediate transfer unit ~~vertically detachably~~ installed at a transfer unit operating position in the internal space of the main frame through the upper side of the main frame independently from the photosensitive drum unit, and having a transfer belt to which a toner image is transferred from the photosensitive drum,
wherein the photosensitive drum unit and the intermediate transfer unit are sequentially mounted and dismounted into and from the internal space through the upper side of the main frame, the intermediate transfer unit is installed above the photosensitive drum unit, and the photosensitive drum unit and the intermediate transfer unit operate in the drum operating position and the transfer unit operating position, respectively.
2. (Original) The electrophotographic printer of claim 1, wherein the photosensitive drum unit further comprises a first cleaning device to remove toner remaining on a surface of the photosensitive drum after the toner image is transferred to the transfer belt.
3. (Original) The electrophotographic printer of claim 1, wherein the photosensitive drum unit further comprises a charger to charge the photosensitive drum to a uniform potential.
4. (Original) The electrophotographic printer of claim 3, further comprising:
an erasing lamp installed on the main frame to irradiate light onto the photosensitive

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drum and to erase charges remaining on the photosensitive drum after the toner image is transferred,

wherein the photosensitive drum unit further comprises a light guiding member to guide the light irradiated from the erasing lamp to the photosensitive drum.

5. (Previously Presented) The electrophotographic printer of claim 1, wherein the intermediate transfer unit further comprises a second cleaning device to remove toner remaining on the transfer belt after the toner image is transferred to a sheet.

6. (Original) The electrophotographic printer of claim 1, further comprising:
a plurality of development units each having a developing roller to form the toner image by supplying toner to the electrostatic latent image,

wherein the plurality of development units slide in a horizontal direction and are detachably installed on the main frame.

7. (Original) The electrophotographic printer of claim 6, wherein each of the plurality of development units further comprises a position determining unit to maintain a developing gap between the developing roller and the photosensitive drum.

8. (Original) The electrophotographic printer of claim 7, wherein the position determining unit comprises a bushing rotatably installed at both ends of the developing roller to contact the photosensitive drum when the developing roller is spaced apart from the photosensitive drum by the developing gap.

9. (Original) The electrophotographic printer of claim 6, further comprising:
a plurality of rails provided on the main frame; and
an erroneous insertion preventing unit to mount the plurality of development units on a predetermined rail among the plurality of rails.

10. (Original) The electrophotographic printer of claim 7, wherein the erroneous

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insertion preventing unit comprises:

recognition units provided at the respective development units to have different shapes from one another; and

connection units provided at the main frame to be complementarily coupled to corresponding ones of the recognition units.

11. (Original) The electrophotographic printer of claim 6, further comprising:
a pre-transfer eraser installed on the main frame to remove charges from a non-image region of the photosensitive drum by irradiating light onto the photosensitive drum before the toner image formed on the photosensitive drum is transferred to the transfer belt,

wherein the pre-erasing unit comprises,

a plurality of pre-erasing lamps to irradiate light; and

a pre-transfer erasing lens to induce the light generated from the pre-transfer erasing lamp to the photosensitive drum, the pre-transfer erasing lens movably installed such that it moves to an erasure position at which the pre-transfer erasing lens is close to the photosensitive drum to provide erasure, and to a retracted position spaced apart from the photosensitive drum so as not to interfere therewith when the photosensitive drum unit is mounted or dismounted.

12. (Original) The electrophotographic printer of claim 11, wherein the pre-transfer erasing unit is positioned above the plurality of development units, the pre-transfer erasing lens interfering with the uppermost development unit when the plurality of development units are mounted or dismounted by moving to the erasure position and the retracted position.

13. (Original) The electrophotographic printer of claim 12, wherein the pre-transfer erasing unit further comprises an elastic member to provide elasticity in a direction in which the pre-transfer erasing lens moves to the retracted position, the pre-transfer erasing lens contacting a leading edge of the uppermost development unit when the development unit is mounted, to move to the erasure position, and the pre-transfer erasing lens returning to the retracted position by the elasticity of the elastic member when the uppermost development unit

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is retracted.

14. (Original) The electrophotographic printer of claim 1, further comprising:
a transfer roller to selectively contact or be spaced apart from the transfer belt and to transfer the toner image to a sheet of paper transported between the transfer roller and the transfer belt;

a fusing device to fix the toner image on the sheet by applying heat and pressure;

a sheet supplying unit; and

a sheet transport unit including a feed path to guide the sheet between the feed roller and the fusing device, and a duplex path to provide duplex printing.

15. (Previously Presented) The electrophotographic printer of claim 14, wherein the sheet transport unit is positioned opposite to a plurality of development units with respect to the photosensitive drum unit.

16. (Original) The electrophotographic printer of claim 14, wherein the sheet transport unit is rotatably installed on the main frame.

17. (Original) The electrophotographic printer of claim 15, wherein the transfer roller is installed in the sheet transport unit.

18. (Original) The electrophotographic printer of claim 1, further comprising:
a waste toner storage container to store waste toner generated at the photosensitive drum and the transfer belt, and installed so as to be mounted on or dismounted from the main frame in a lengthwise direction of the photosensitive drum.

19. (Withdrawn) An electrophotographic printer comprising:
a main frame;
a photosensitive drum unit having a photosensitive drum on which an electrostatic latent image is formed;

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a plurality of development units each having a developing roller to form a toner image by supplying toner to the electrostatic latent image;

one or more rails provided on the main frame; and

an erroneous insertion preventing unit to mount the plurality of development units on corresponding ones of the rails,

wherein the photosensitive drum unit is mounted on or dismounted from the main frame in a vertical direction, and the plurality of development units are mounted on or dismounted from the main frame in a direction perpendicular to the direction in which the photosensitive drum unit is mounted or dismounted.

20. (Withdrawn) The electrophotographic printer of claim 19, wherein the plurality of development units are mounted or dismounted in a horizontal direction.

21. (Withdrawn) The electrophotographic printer of claim 19, wherein the plurality of development units are mounted or dismounted in a lengthwise direction of the photosensitive drum.

22. (Withdrawn) An electrophotographic printer comprising:

a main frame;

a photosensitive drum unit having a photosensitive drum on which an electrostatic latent image is formed, and slidably mounted on or dismounted from the main frame in a first direction;

a development unit having a developing roller to supply toner to the photosensitive drum to develop the electrostatic latent to form a toner image, and slidably mounted on or dismounted from the main frame in a second direction different from the first direction; and

an intermediate transfer unit having a transfer medium to which the toner image is transferred from the photosensitive drum, and mountable on the main frame independently from the photosensitive drum unit and adjacent thereto.

23. (Withdrawn) The electrophotographic printer of claim 22, wherein the first direction and the second direction are perpendicular to each other with respect to rotation axes

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of the photosensitive drum and the developing roller, respectively.

24. (Withdrawn) The electrophotographic printer of claim 22, wherein the intermediate transfer unit is slidably mounted on or dismounted from the main frame in the first direction.

25. (Withdrawn) An electrophotographic printer comprising:
a frame;
a photosensitive drum unit having a photosensitive drum on which an electrostatic latent image is formed, and slidably mounted on or dismounted from the frame in a vertical direction;
a development unit having a developing roller to supply toner to the photosensitive drum to develop the electrostatic latent image to form a toner image, and slidably mounted on or dismounted from the frame in a horizontal direction; and
an exposure unit disposed below the photosensitive drum unit to form the electrostatic latent image on the photosensitive drum.

26. (Withdrawn) An electrophotographic printer, comprising:
a frame having first and second covers to cover first and second sides, respectively;
a photosensitive drum to be installed in the frame through the first side;
a developing unit to be installed independently from the photosensitive drum in the frame through the second side; and
an intermediate transfer unit to be installed in the frame through the first side.

27. (Withdrawn) The printer of claim 26, wherein the photosensitive drum is installed into the frame in a first direction, and the developing unit is installed into the frame in a second direction different from the first direction.

28. (Cancelled)

29. (Withdrawn) The printer of claim 26, wherein the intermediate transfer unit is

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disposed above the photosensitive drum.

30. (Withdrawn) The printer of claim 26, further comprising:
an exposure unit disposed below the photosensitive drum to form an electrostatic latent image on the photosensitive drum.

31. (Withdrawn) An electrophotographic printer, comprising:
a frame having first and second covers to cover first and second sides, respectively;
a photosensitive drum to be installed in the frame through the first side; and
a developing unit to be installed independently from the photosensitive drum in the frame through the second side and having at least one developing roller and a position determining unit to maintain a developing gap between the at least one developing roller and the photosensitive drum.

32. (Withdrawn) The electrophotographic printer of claim 31, wherein the position determining unit comprises a bushing rotatably installed at both ends of the at least one developing roller to contact the photosensitive drum when the at least one developing roller is spaced apart from the photosensitive drum by the developing gap.

33. (Withdrawn) An electrophotographic printer, comprising:
a frame having first and second covers to cover first and second sides, respectively;
a photosensitive drum to be installed in the frame through the first side;
a plurality of developing units to be installed independently from the photosensitive drum in the frame through the second side;
a plurality of rails provided on the frame; and
an erroneous insertion preventing unit to mount the plurality of development units on a predetermined rail among the plurality of rails.

34. (Withdrawn) The electrophotographic printer of claim 33, wherein the erroneous insertion preventing unit comprises:

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recognition units provided at the respective development units to have different shapes from one another; and

connection units provided at the frame to be complementarily coupled to corresponding ones of the recognition units.

35. (Withdrawn) An electrophotographic printer, comprising:
a frame having a first side, second side, and a third side to define an inner space;
a first rail formed on a first portion of the third side to guide a photosensitive drum unit into the inner space through the first side;
a second rail formed on a second portion of the third side to guide an intermediate transfer unit into the inner space through the first side; and
a third rail formed on a third portion of the third side to guide a developing unit into the inner space through the second side.

36. (Withdrawn) The electrophotographic printer of claim 35, wherein the third side comprises a common portion formed on an entrance portion of the first rail and the second rail.

37. (Withdrawn) The electrophotographic printer of claim 35, wherein:
the developing unit comprises a plurality of sub-developing units; and
the third rail comprises a plurality of sub-rails corresponding to respective sub-developing units.

38. (Withdrawn) The electrophotographic printer of claim 37, wherein the plurality of sub-rails have different lengths.

39. (Withdrawn) The electrophotographic printer of claim 37, wherein the plurality of sub-rails comprise end portions perpendicular to a circumferential surface of the photosensitive drum.

40. (Currently Amended) An electrophotographic printer comprising:

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a main frame;

a photosensitive drum unit ~~vertically-detachably~~ installed in the internal space of the main frame through an upper side of the main frame, and having a photosensitive drum on which an electrostatic latent image is formed; and

an intermediate transfer unit ~~vertically-detachably~~ installed in the main frame through the upper side of the main frame independently from the photosensitive drum unit, and having a transfer belt to which a toner image is transferred from the photosensitive drum,

wherein the photosensitive drum unit and the intermediate transfer unit are sequentially mounted and dismounted into and from the internal space through the upper side of the main frame, and an electrostatic latent image formed on the photosensitive drum is developed by at least two developing rollers and transferred to the intermediate transfer unit from the photosensitive drum.